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ENTOMOLOGY IN THE FABLES OF JOHN GAY

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It is of passing interest to note the references to insects in the work of John Gay, especially as his fables are not so well known as those of Aesop and La Fontaine. Walton* in his paper on the "Entomology of English Poetry" makes reference to a few "entomological" fables by recent authors but the scope of his paper did not include them as such. The so called "entomological" fables differ from others only in the relegation to insects, instead of to other lower animals or inanimate objects, of the qualities of reasoning beings. Like other fables, they are carriers of general or what are supposed to be general truths.

Aesop's fables occasionally have insects as the chief actors, as for example, "The Ant and the Grasshopper," in which the advisability of preparing for days of necessity is brought out; "The Fox and the Mosquitoes," wherein the fox would not rid himself of present annoyers because they would be replaced by others with fresh appetites; "The Bald Man and the Fly", which conveys the impression that small enemies should be ignored and etc.

La Fontaine who died in 1695 also used insects in some of his fables and of such, may be mentioned, "The Lion and the Gnat," in which is related an account of a battle between a lion and a gnat, with the gnat as victor later being caught in a spider's web, the moral being, that enemies are not to be disregarded and that small pitfalls are apt to catch one after a great victory; "The Dove and the Ant", each of which does the other a good turn; "The Grasshopper and the Ant", being similar to the one credited to Aesop; and such others as "The Drones and the Bees", "The Coach and the Fly" and "The Man and the Flea".

The four fables of John Gay, in which insects are mentioned are quoted in full. These together with his other fables have been characterized as "light, pleasing and smooth in versification." This author who has been called the inventor of comic opera was a friend of Prior, Pope and Swift and the best liked in the Pope and Swift group of poets and wits. Kind, lazy and clever are adjectives which have been used in describing him. He was born in 1685 and came of a good but poor Devonshire family. At the age of 12 he was apprenticed to a London silk mercer, but had no liking for the work. He wrote satirical poetry and farces and usually being without money or rather much money during all of his years of effort, was dependent upon the kindnesses of his friends. Swift complained about him to Pope—"He has as little foresight of age, sickness, poverty, or loss of admirers as a girl of fifteen."

In 1712, Gay became domestic secretary to the Duchess of Monmouth, a position probably created for him out of kindness and one which allowed him to indulge in his art. Some of his writings are "Wine", a poem in blank verse (1708); "Rural Sports" (1713); "The Wife of Bath" (1713), an unsuccessful

*—Proc. Ent. Soc. Wash. Vol. 24, No. 7-8, pp. 159-203.

comedy; "The What d'ye Call It?" (1715), a tragi-comi-pastoral farce, which also did not take well; "Trivia; or the Art of Walking the Streets of London" (1716) and other dramas and poems. His best known work is "The Beggar's Opera," which was produced in 1728, being very successful. His book of "Fables" was first published in either 1725 or 1727 but did not produce the income which was expected of it. It was dedicated to His Highness William Duke of Cumberland, then a boy of six. Gay died in London, December 4, 1732 and the edition of his "Fables", from which the following were taken, is the fifth, printed in London, 1737 or five years after his death.

The Lady and the Wasp

What whispers must the Beauty bear!
What hourly nonsense haunts her ear!
Where-e'er her eyes dispense their charms
Impertinence around her swarms,
Did not the tender nonsense strike,
Contempt and scorn might look dislike,
Forbidding airs might thin the place,
The slightest flap a fly can chase.
But who can drive the num'rous breed?
Chase one, another will succeed.
Who knows a fool, must know his brother;
One fop will recommend another;
And with this plague she's rightly curst,
Because she listen'd to the first.

As Doris, at her toilette's duty,
Sate meditating on her beauty,
She now was pensive now was gay,
And loll'd the sultry hours away.
As thus in indolence she lyes,
A giddy Wasp around her flies,
He now advances, now retires,
Now to her neck and cheek aspires;
Her fan in vain defends her charms
Swift he returns, again alarms,
For by repulse he bolder grew,
Perch'd on her lip and sipt the dew.
She frowns, she frets, Good Gods, she cries,
Protect me from these teasing flies
Of all the plagues that heav'n hath sent
A Wasp is most impertinent,
The hov'ring insect thus complained,
Am I then slighted, scorn'd, disdain'd?
Can such offence your anger wake?
'Twas beauty caus'd the bold mistake.
Those cherry lips that breathe perfume,
That cheek so ripe with youthful bloom
Made me with strong desire pursue
The fairest peach that ever grew.
Strike him not, Jenny, Doris cries,
Nor murder Wasps, like vulgar flies,
For though he's free (to do him right)
The creature's civil and polite.
In ecstasies away he posts,
Where-e'r he came the favor boasts.
Braggs how her sweetest tea he sips,
And shews the sugar on his lips.
The hint alarm'd the forward crew.
Sure of success away they flew;
They share the dainties of the day,
Round her with airy musick play,
And now they flutter, now they rest.
Now soar again, and skim her breast.

Nor were they banish'd, 'till she found
That Wasps have stings, and felt the wound.

The Butterfly and the Snail

All upstarts, indolent in place,
Remind us of their vulgar race.
As, in the sun-shine of the morn,
A Butterfly (but newly born)
Sate proudly perking on a rose;
With pert conceit his bosom glows,
His wings (all glorious to behold)
Bedropt with azure, jet and gold,
Wide he displays; the spangled dew
Reflects his eyes and various hue.
His now forgotten friend, a Snail,
Beneath his house, with slimy trail
Crawles o'er the grass; whom when he spies,

In wrath he to the gard'ner cries;
What means yon peasant's daily toil,
From choaking weeds to rid the soil?
Why wake you to the morning's care?
Why with new arts correct the year?
Why glows the peach with crimson hue?
And why the plum's inviting blue?
Were they to feast his taste designed,
That vermine of voracious kind?
Crush then the slow, the piffring race,
So purge thy garden from disgrace.
What arrogance the Snail reply'd;
How insolent is upstart pride
Hadst thou not thus, with insult vain,
Provok'd my patience to complain;
I had conceal'd thy meaner birth,
Nor trac'd thee to the scum of earth.
For scarce nine suns have wak'd the hours,
To swell the fruit and paint the flowers,
Since I thy humbler life survey'd,
In base in sordid guise array'd;
A hideous insect, vile, unclean,
You dragg'd a slow and noisome train,
And from your spider bowels drew
Foul film, and spun the dirty clue.
I own my humble life, good friend;
Snail was I born, and snail shall end.
And what's a butterfly? At best,
He's but a caterpillar, drest;
And all thy race (a num'rous seed)
Shall prove of caterpillar breed.

The Turkey and the Ant

In other men we faults can spy,
And blame the mote that dims their eye,
Each little speck and blemish find,
To our own stronger errors blind.

A Turkey, tir'd of common food,
 Forsook the barn and sought the wood,
 Behind her ran her infant train,
 Collecting here and there a grain.
 Draw near my birds, the mother cries,
 This hill delicious fare supplies;
 Behold, the busy Negro race,
 See, millions blacken all the place
 Fear not. Like me with freedom eat;
 An ant is most delightful meat.
 How blest, how envy'd were our life,
 Could we but 'scape the poulter's knife
 But man, curst man on turkey preys,
 And Christmas shortens all our days;
 Sometimes with oysters we combine,
 Sometimes assist the sav'ry chine.
 From the low peasant to the lord,
 The turkey smoaks on ev'ry board.
 Sure men for gluttony are curst,
 Of the sev'n deadly sins the worst.
 An Ant, who climb'd beyond his reach,
 Thus answer'd from the neighb'ring beech.
 Ere you remark another's sin,
 Bid thy own conscience look within,
 Controul thy more voracious bill,
 Nor for a breakfast nations kill.

The Man and the Flea

Whether on earth, in air, or main,
 Sure ev'ry thing alive is vain!
 Does not the hawk all fowls survey,
 As destin'd only for his prey?
 And do not tyrants, prouder things,
 Think men were born for slaves to kings?
 When the crab views the pearly strands,
 Or Tagus, bright with golden sands,
 Or crawls beside the coral grove,

And hears the ocean roll above;
 Nature is too profuse, says he,
 Who gave all these to pleasure me.
 When bord'ring pinks and roses bloom,
 And ev'ry garden breathes perfume,
 When peaches glow with sunny dyes,
 Like Laura's cheek, when blushes rise;
 When with huge figs the branches bend;
 When clusters from the vine depend;
 The snail looks round on flow'r and tree,
 And cries, All these were made for me.
 What dignity's in human nature,
 Says Man, the most conceited creature,
 As from a cliff he cast his eye,
 And view'd the sea and arched sky!
 The sun was sunk beneath the main,
 The moon, and all the starry train
 Hung the vast vault of heav'n. The Man
 His contemplation thus began,
 When I behold this glorious show,
 And the wide watry world below,
 The scaly people of the main,
 The beasts that range the wood or plain,
 The wing'd inhabitants of air,
 The day, the night, the various year,
 And know all these by heav'n designed
 As gifts to pleasure human kind,
 I cannot raise my worth too high;
 Of what vast consequence am I!
 Not of the importance you suppose,
 Replies a Flea upon his nose:
 Be humble, learn thyself to scan;
 Know, pride was never made for man.
 'Tis vanity that swells thy mind,
 What, heav'n and earth for thee design'd
 For thee made only for our need;
 That more important Fleas might feed,

NEW CANADIAN EPHEMERIDAE WITH NOTES, III.*

BY J. McDUNNOUGH,

Ottawa, Ont.

(Continued from page 176)

Cloeon simplex n. sp.

Male. Turbinate eyes (living) light green, (dried) pale orange-yellowish with deep brown base; head and thorax dorsally dark black-brown, the latero-anterior margins of mesonotum somewhat paler; the posterior margin of pronotum creamy with a ruddy brown dot; posterior margin of mesonotum, the entire scutellum and a small patch anterior to it, and the anterior margin of the metanotum creamy; pleura largely creamy, tinged with ruddy brown; prosternum whitish, meso- and metasternum largely brown, shaded laterally and centrally with creamy; legs entirely pale, whitish. Abdomen with segments 1-6 pale whitish hyaline with traces of black stigmatal hair-line; segments 7-10 opaque, dorsally bright chestnut brown, shaded with creamy on lateral margin and on posterior portion of segment 10, ventrally entirely pale creamy; forceps and setae white. Wings hyaline with pale veins and crossveins; costal crossveins 6-7 in number without granulations in interspaces; intercalary lacking in first interspace and frequently also in second; first crossvein between radius and the first vein of the radial sector in a line with following one. Length of body $4\frac{1}{2}$ mm.; of forewing 5 mm.

Holotype—♂, Ottawa Golf Club, Que., Aug. 14, (F. P. Ide); No. 1284

in the Canadian National Collection, Ottawa.

Paratypes—2 ♂, same locality and collector, Aug. 14, 25.

Distinguished from *rubropicta* by the paler eyes, pale markings on thorax, and lack of ruddy spots on abdomen. On the strength of the position of the cross-veins in the radial sector the species would fall into *Procloeon* Bngtssn (1914, Ent. Tidsk., 218) along with *vicinum* Hag., *rubropicta* McD. and *inanum* McD.; I am, however, not at all certain that this character is constant in our North American species and prefer not to use it for generic separation at the present time.

The females of the species are very pale ochreous, tinged noticeably on the thorax and legs with greenish and at times showing traces of this color on the abdomen, setae and wings; they are somewhat larger in size than the males, and occur in the same locality.

Cloeon insignificans n. sp.

Male. Eyes (dried) black-brown; head and thorax deep brown, almost unicolorous, slightly paler on sternum; abdomen with segments 2-6 pale, hyaline, immaculate with the exception of obsolescent, short geminate mediodorsal ruddy streaks on segments 2 and 3; segments 7-10 opaque, deep fawn brown, somewhat paler ventrally. Legs, forceps and setae whitish. Wings hyaline with pale venation; costal crossveins 5-6 in number; no intercalaries in first and second interspaces; first crossvein between radius and the radial sector in a line with second one. Length of body 3 mm.; of forewing 4 mm.

Holotype—♂, Ottawa, Ont., Aug. 21, (F. P. Ide); No. 1290 in the Canadian National Collection, Ottawa.

Paratype—1 ♂, same data.

Close to *rubropicta* McD. but lacking the ruddy streaks and dots except as above mentioned; there is also no black stigmal line and the ventral surface of the posterior segments is light fawn brown, not white. The male forceps (fig. 12) are shorter and generally wider apart at the base in dried specimens than in *rubropicta* (fig. 13) and there is also a difference in the shape of the penis-cover.

Siphonurus quebecensis Prov.

Through the kindness of Canon Huard I have recently been enabled to examine Provancher's types of *Heptagenia quebecensis* and *Siphonurus quebecensis*.

The former, a male, labelled in Provancher's handwriting and with an additional blue label "38", is in poor condition, one side of the wings being missing and portions of the abdomen eaten by *Anthrenus*. It proves to be, not a *Heptagenia*, but a *Siphonurus*, and is undoubtedly the same species as that which we have been calling *triangularis* Clem.; certain segments of the abdomen distinctly show the triangular dark ventral maculation and the genitalia are similar. The type is peculiar in that the crossveins of the primaries are few in number and those that are present are rather broken; this fact was noted by Provancher (nervures transversales interrompues, peu apparentes) but is merely aberrational.

A label with the name "*Siphonurus quebecensis*" was attached to a subimago male with blue label "39"; following this specimen the collection contained a male and a female imago, unlabelled. The subimago, evidently the specimen

mentioned in the original description (under *Baetis canadensis*), belongs to *quebecensis* of the preceding paragraph, as does also the female imago; the male, however, which fits in quite well with Provancher's description and which may have been a type, is very close to *Siphonurus berenice* McD. and probably this species. As, however, in any case, the name now becomes a homonym, the actual identity of the type specimen is of minor importance.

***Siphonurus columbianus* n. sp.**

Male. Similar to *occidentalis* Eaton in size and maculation but differing in genitalia.

Thorax deep brown, shaded with paler ruddy brown anterior to the mesothoracic scutellum, which is blackish; pleural sutures and bases of wings yellowish. Abdomen dorsally deep purplish brown, shaded irregularly with light ochreous on latero-anterior portion of each segment, most obviously on segments 8 and 9; ventrally dull ochreous with broad oblique purple-brown lateral stripes, which generally coalesce on anterior margin of each segment to form U-shaped marks; these marks are much less distinct than in *occidentalis*, especially on segments 8 and 9, where they hardly join and appear diffuse and poorly defined, within the U on each segment are generally two minute dark dots; segment 10 wholly brown; forceps dark with paler base. Setae dark basally, becoming paler toward tips and showing brown annulation. Forelegs deep black-brown, two hind pairs light ochreous brown, the femora with slight purple-brown streak before apex, the joints of the tarsi marked with same color. Wings hyaline with slight brownish tinge in costo-apical section; venation entirely blackish. Length of body 12 mm.; of forewings 13 mm.

Female.—Very similar to the male, but somewhat larger.

Holotype—♂, Agassiz, B. C., May 1, (R. Glendenning); No. 1327 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—3 ♂, 14 ♀, same data.

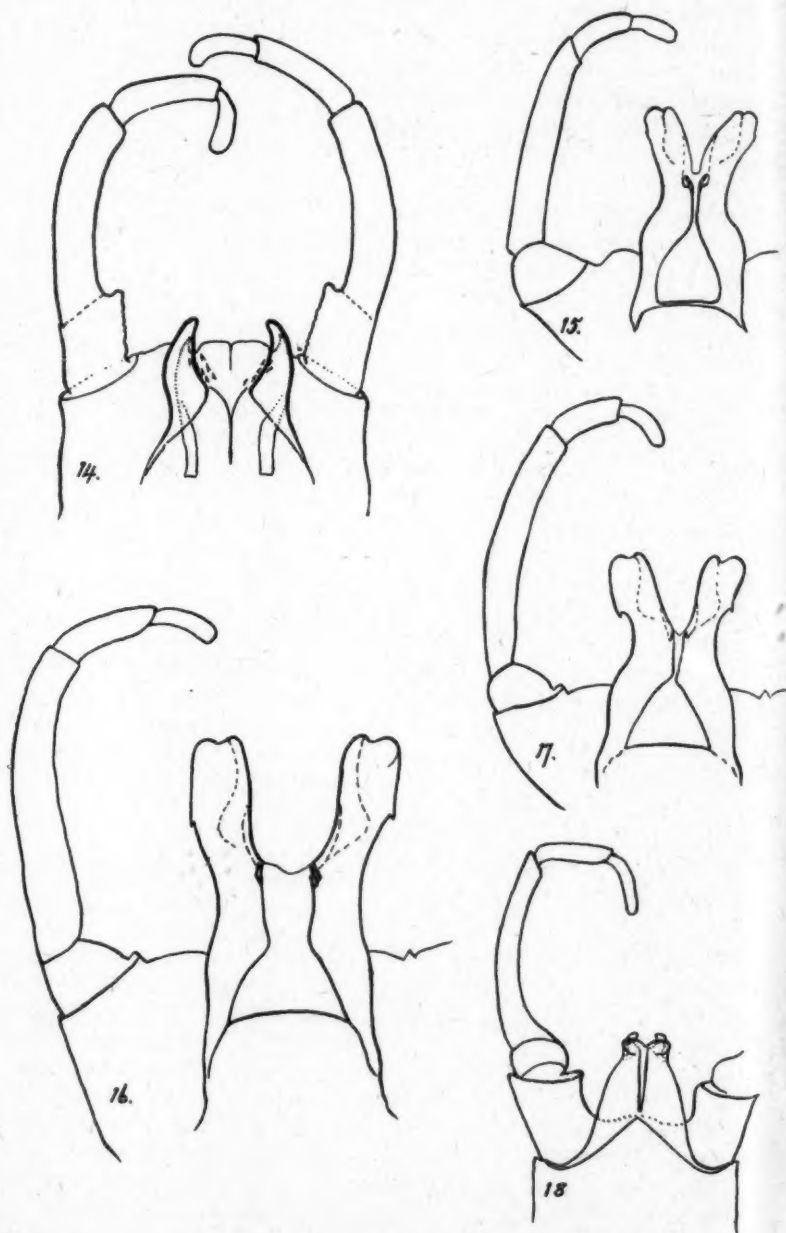
The pale ruddy spot on the rear of the mesonotum and the faint dark apical shade on the forewing are characteristic. The male genitalia (fig. 14) are closest to those of the eastern *barbarus* McD. but the lateral edges of the penes are drawn out into short points and the spining of the central area is much reduced.

HEPTAGENIINAE

***Metretopus norvegicus* Eaton.**

I have received a pair of what appears to be this European species collected by Mr. O. Bryant at Slave Lake, Alta., on Aug. 17, 1924. The genus belongs to Ulmer's family Ametropodidae (1920, Stett. Ent. Zeit. 81, 135) which is distinguished from his Ecdyonuridae by the presence on the primaries of only a single pair of intercalaries between the first and second anal veins; this family contains the two genera *Ametropus* Albda and *Metretopus* Eaton and it might be well to call attention to the fact that in Ulmer's key (l. c. 135) the references to the median caudal seta are reversed; it is in *Metretopus* (not *Ametropus*) that this seta is rudimentary.

The male specimen before me agrees so well with Eaton's figures and description (1901, Ent. Mo. Mag. 37, 254) of *norvegicus* that for the present I am



listing the species under this name.

Iron humeralis Morg.

As originally described *humeralis* is a pale species with slight dark shading along the posterior margin of the abdominal segments. Such specimens occasionally occur in the Ottawa region; specimens from Covey Hill, Que., while agreeing with these Ottawa specimens and with Morgan's figure in the male genitalia, have the abdomen dorsally suffused with brown, leaving a double row of oval white spots which at times coalesce to form a single pale patch; the legs also of this series are suffused with ruddy-brown. Owing to the similarity of genitalia I am treating them as a dark form of *humeralis*; a similar condition exists in *Ecdyonurus canadensis* which varies considerably in the amount of dark abdominal maculation.

Iron suffusus n. sp.

Male. Very similar to the above-mentioned dark specimens of *humeralis*; rather larger in size with larger eyes; thorax dull brown, shading into deeper brown posteriorly; abdomen as in dark *humeralis* with the double row of pale subdorsal spots. Legs pale yellowish with median and terminal dark spots on all the femora. Setae pale with traces of brown annulation in basal portion. Genitalia with the penes distinctly longer than in *humeralis* (about 5:3) and more widely separated apically.

Female.—Paler than the male with frequently a red tinge to the abdomen. Length of body 11 mm.

Holotype—♂, Ottawa Golf Club, Que., June 15, (J. McDunnough); No. 1294 in the Canadian National Collection, Ottawa.

Allotype—♀, Aylmer, Que., June 24, (C. B. Hutchings).

Paratypes—15 ♂, 5 ♀, from the above localities and other points on the Ottawa river, captured on various dates in June.

This is a common species of the Ottawa river. I should have considered it to be merely a large *humeralis* (fig. 17) if it had not been for the distinctly larger genitalia, (fig. 16) as shown in the accompanying figures.

Iron punctatus n. sp.

Male. Allied to *humeralis* Morgan; eyes smaller, not contiguous; head and thorax deep black-brown, the lateral edges of the mesonotum and a patch behind the scutellum, as well as the pleural sutures, ochreous; mesosternum between first two pairs of legs shaded with ochreous. Abdomen with segments 2-7 pale hyaline, segments 8-10 opaque and shaded with brown dorsally; the pale segments are very faintly and narrowly edged with blackish posteriorly and there is a distinct median row of blackish dots, one situated on posterior portion of each segment; in certain lights faint traces of a lateral row of small darkish spots is evident. Forceps and setae pale whitish, legs yellowish white with the usual central and apical dark patches on femora; fore tibia black-tipped. Wings hyaline, with pale veins and crossveins; costo-basal crossvein tinged with black. Length of body 8 mm.; of forewing 8 mm.

Holotype—♂, Ottawa, Ont., Aug. 6, (F. P. Ide); No. 1295 in the Canadian National Collection, Ottawa.

Paratypes—1 ♂, Ottawa Golf Club, Que., Aug. 14, (G. S. Walley); 1 ♂,

Laprairie, Que., July 8, (G. S. Walley).

Distinguished in the male sex from *humeralis* by the smaller eyes, much darker thorax and the lack of the small lateral spines in the apical portion of the penes (fig. 15).

Two females (Ottawa, July 19, Aug. 28) before me, I at present associate with this species: they are pale ochre-brown on the head and thorax and show a dorsal and two lateral rows of dark spots on the abdomen as well as a narrow, dark, posterior border to each segment.

Anepeorus n. gen.

Agrees with *Epeorus* and differs from all other genera in the subfamily in having the claws of the male foreleg equal and blunt. Differs from *Epeorus* in the relative size of the fore tarsal joints, joint 1 being rather more than one half as long as 2 which is distinctly longer than 3; 4 is longer than 5 and subequal to or slightly longer than 1 (relative length, 15, 25, 20, 15, 10); fore tibia one and one quarter times the length of femur; fore tarsus about two thirds the tibia; hind legs with tibia slightly shorter than femur (45 to 50); tarsus about one third the length of tibia, joints 1 and 2 subequal and distinctly longer than 3 and 4 which are subequal, 5 equal in length to 2-4 combined. Forceps 4-jointed; penes united and broadly triangularly expanded at the base, apically forming two simple cylindrical lobes, separated by a V-shaped incision.

Genotype: *Anepeorus rusticus* n. sp.

Anepeorus rusticus n. sp.

Head brown, tinged with ochreous along the eye-margins opposite the antennae; thorax dull brown, pleura tinged with pale ochreous, especially anterior to base of wings; abdomen dorsally dull clay-brown, slightly translucent on anterior segments and shading into light ochreous brown on three posterior ones; very faint traces of subdorsal and lateral rows of small darker brown spots; ventrally slightly paler than dorsally with two small central dots and narrow lateral oblique dashes on each segment. Forceps ochreous brown; setae dirty white. Forelegs brown, shading into blackish on the tarsus, two hind pairs pale ochreous. Wings hyaline, longitudinal veins pale, crossveins darker and very fine, except in apical region of primaries where they are much thicker and slightly anastomosed along costa. Length of body 8 mm., of forewing 9 mm.

Holotype—♂, Saskatoon, Sask., Sept. 14, 1924, (K. M. King); No. 1293 in the Canadian National Collection, Ottawa.

Paratypes—2 ♂, same data.

The similar blunt claws on the foreleg and the general dull brown color should render the species easily recognizable. The male genitalia (fig. 18) are quite unique, the basal plate of the forceps being strongly excavated and the apical portion of the penes consisting of three superimposed projections which in the figure (dorsal view) are hard to delineate but which are easily seen in a lateral view.

Ecdyonurus femoratus Say.

This species, described as a *Baetis* was placed by Eaton (Mon. p. 220) in the genus *Siphonurus*; Eaton's description, however, is based on Walsh's misdetermination, and his species, as I have already shown (Can. Ent., LVI, 128)

should be known by the name *Siphloplecton interlineata* Wlsh. The true *femoratus* Say is, I believe, an *Ecdyonurus*; it was described from material taken at Cincinnati, Ohio, and I have before me topotypical specimens, received through the kindness of Miss A. Braun, which agree extremely well with the description. These specimens show the brown-bordered crossveins, mentioned by Say, (a character not known in *Siphonurus* species) and two of the older specimens agree with the characterization "wings snowy white", the membrane being suffused with a milky opalescent tinge; the femora are distinctly banded with red-brown and the abdomen beneath is pale yellow-white. In amplification of Say's description it might be added that the costal apical margin of primaries is suffused with ruddy and that the apex of secondaries is tipped with brown; dorsally segments 2-6 of the abdomen are pale brownish, deeper laterally and posteriorly, segments 7-10 much deeper brown; there are obscure lateral rows of small brown patches and a mediodorsal row of small black dots, one situated on the posterior margin of each segment; the caudal setae are longer than given by Say but it is quite possible that the tips were broken off in his specimens.

The present species, or a very similar one, has been known as *vicarius* Wlk. but this identification is incorrect; from information I have received regarding the type, *vicarius* shows no brown apical shade on secondaries.

***Ecdyonurus pudicus* Hagen.**

This species will have to be removed from the synonymy of *vicarius* Wlk. as placed by Eaton. The type is a subimago from Washington, D.C., in very poor condition in the Museum of Comparative Zoology, Cambridge, Mass., but Dr. Banks has succeeded in matching it with specimens taken in the vicinity of Washington and in the Black Mountains, N. C. The species is very similar to the preceding, showing the same dark tip to the hindwing; it is however larger, paler, with the abdomen very decidedly ringed with brown dorsally and with a series of mediodorsal sagittate marks in place of the dark dots of *femoratus*.

***Heptagenia impersonata* n. sp.**

Male. Head, thorax and abdomen deep brown, the latter two pale ventrally, more ochreous brown; forceps and setae dark brown. Legs brown, almost the same shade as the ventral portion of the abdomen, the femora broadly shaded in their central portion with deeper brown, especially noticeable on the forelegs. Wings hyaline, slightly tinged with brown at base, with strong blackish veins and crossveins, the crossveins in the apical costal region of primaries being more or less branched and anastomosed. Length of body 9 mm.; of forewing 10 mm.

Female. Very similar to the male; almost unicolorous brown.

Holotype—♂, Montreal, Que., June 20, (C. H. Curran); No. 1299 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—3 ♂, same data.

The species is allied to *jejuna* Eaton but differs in the details of the male genitalia, the apices of the penes being broader and much less outcurved. The branching of the costal crossveins is characteristic of this whole group which includes *luridipennis* Burm., *brunnea* Hagen, *flavianula* McD., *undulatus* Banks. and *morrisoni* Banks. (These last two species were erroneously diagnosed in the

original description, joint 1 of the male foreleg is short.). This feature may possibly be of generic value; it is certainly useful in separating the group from the remainder of the species included under *Heptagenia*, and removes it also from *Rhithrogena*, where some of the species were placed by Eaton.

EXPLANATION OF PLATES

Male genitalia of 1.—*Ephemerella excrucians* Walsh; 2.—*Ephemerella septentrionalis* n. sp.; 3.—*Ephemerella needhami* n. sp.; 4.—*Baetis brunneicolor* n. sp.; 5.—Hind wing of *Baetis brunneicolor* n. sp.; male genitalia of 6.—*Baetis spinosus* n. sp.; 7.—*Baetis frivolus* n. sp.; 8.—*Baetis frondalis* n. sp.; Hind wing of 9.—*Baetis frivolus* n. sp.; 10.—*Baetis frondalis* n. sp.; 11.—*Baetis spinosus* n. sp.; Male genitalia of 12.—*Cloeon insignificans* n. sp.; 13.—*Cloeon rubropicta* McD.

Male genitalia of 14.—*Siphonurus columbianus* n. sp.; 15.—*Iron punctatus* n. sp.; 16.—*Iron suffusus* n. sp.; 17.—*Iron humeralis* Morg.; 18.—*Anepeorus rusticus* n. sp.

NEW SPECIES OF IPIDAE* (COLEOPTERA).

BY J. M. SWAINE,

Ottawa, Ont.

Pityophthorus boycei n. sp.

This species is rather large for the genus, of the form of *confinis* Lec., but most closely allied to *ramiperda* Sw. and *nitidus* Sw.; larger and stouter than *nitidus*, the elytra less strongly punctured, the declivity much more abrupt, and the punctures more strongly granulate on the sides.

Length 3 mm. Relative measurements; pronotum, width 5.2, length 5.5; elytra, width 5.8, length 10. Black, with antennae, legs and declivity of pronotum reddish; the whole upper surface shining.

The *Head* (δ) has the front flattened, feebly convex, coarsely and rugosely punctured, with a narrow, acute, elongate, median carina extending from the epistoma to the vertex; the pubescence short and inconspicuous; the antennal club short oval, much wider at the middle, the two basal segments much shorter than the others, the first two sutures nearly straight, the third very strongly arcuate.

The *Pronotum* has the sides subparallel, feebly arcuate behind, feebly constricted in front of the middle and broadly rounded on the cephalic margin; the latter with ten or twelve recurved serrations, the median 4 or 6 longer and slender; the asperities of the cephalic half coarse, sparse, concentric; the summit elevated; the disc behind rather closely punctured, the punctures moderate in size and granulate, the arrangement somewhat concentric with the concavity towards the summit; on the sides behind similarly but densely punctured and feebly granulate; the median line polished, rather wide, not carinate; the basal margination prominent and continued on the sides.

The *Elytra* have the sides subparallel, broadly rounded behind, not acuminate; the disc rather feebly sculptured, with the striae not impressed, except the sutural striae which are somewhat sulcate; the striae punctures small, in fairly regular rows, somewhat confused towards the base; the interspaces similarly, not so closely, punctured throughout, very closely at the base, particularly about the scutellum; on the sides the 9th interspace distinctly carinate from the humeri to the extremity on the declivity, the following interspaces variably impressed and the punctures somewhat confused; the *Declivity* smooth, polished,

*—Contribution from Division of Forest Insects, Entomological Branch, Department of Agriculture, Ottawa, Ont.

almost unarmed, feebly retuse, the sulcus very shallow and wide, the punctures of the 2nd striae faintly visible on the declivity, the 2nd interspace not widened, the suture rather wide but only feebly elevated, with the row of granules on the suture and 3rd interspace of the convexity almost obsolete, the granules minute; the last ventral segment very deeply emarginate, the pygidium visible from below.

Holotype—♂, Cisco, Placer Co., Cal., III, 13, 19, J. B. Boyce, *Pinus contorta*, Lot 450, No. 1367 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—6 ♂'s and 3 ♀'s, same data.

***Pityophthorus carinulatus* n. sp.**

Length, 2.5 mm. Relative measurements; length of pronotum 4.5, width of pronotum 5.1; length of elytra 8.5, width 5.2.

A black species, very stout, with the declivital sulcus very wide and shallow in the male.

The *Head* is strongly opaque, the vertex coarsely, rather sparsely punctured, with the median line smooth; a transversely arcuate median carina between the eyes, formed by the margin of the strong anterior impression, the latter coarsely punctured and very strongly carinate on the median line; the antennal club with segments subequal in length, the sutures arcuate.

The *Pronotum* is widest at the base, arcuate on the sides behind the middle, strongly, arcuately narrowed and feebly constricted in front and moderately rounded on the front margin, which bears several, small, strongly recurved, acute serrations; the asperities of the cephalic half moderate in size, sparse, subconcentrically arranged, smallest and more numerous about the summit, which is rather prominent; the caudal half of the disc shining, moderately not closely punctured, the punctures smaller on the sides; the median line smooth, not elevated.

The *Elytra* have the sides parallel, broadly rounded behind, not acuminate; the scutellar area impressed and closely punctured; the striae not impressed except on the 1st which is slightly so; the striae punctures moderate, not close, in regular rows, apparently confused near the scutellum; the interspaces rather sparsely but evidently punctured, the 3rd more strongly. The *Declivity* has the sulcus exceedingly wide and very shallow, hardly at all impressed, polished; the convexity hardly at all elevated, with a row of very small granules along the 3rd interspace and a few on the side; the suture fine and very feebly granulate. The pubescence of the elytra is very short and indistinct, longer about the sides and on the declivity.

This very distinct, stout species has somewhat the appearance of *Conophthorus*. Of described species it is most nearly allied to the *confinis* group.

Holotype—♂, Tres Ritos, N.M., 7-vii-18, R. Hopping, Coll., No. 1369 in the Canadian National Collection, Ottawa.

Paratypes—1 ♂, same data, 1 ♂ dissected.

***Pityophthorus rugicollis* n. sp.**

Length 2.4 mm. Of the size and habitus of *tuberculatus* Eichh. The *front* (♀) is broadly impressed, smooth and shining, fringed with long, curved,

yellow hairs; the *pronotum* arcuate on the sides behind, strongly constricted in front and moderately rounded on the front margin, which is almost devoid of serrations, but has the two on the middle line distinctly longer; the usual serrations of the cephalic half coarse, irregular in front, in evident, concentric rows near the summit; the median line somewhat elevated, smooth and shining; the punctures on the caudal half small, moderately close on the sides, denser on the disc, feebly granulate, and arranged in concentric rows about the summit.

The *Elytra* have the stria punctures very minute, in straight rows, except near the base; the interspaces minutely punctured on the disc, rather closely towards the base, punctures generally minutely granulate; the *Declivity* rather broadly sulcate, not acuminate, the suture finely elevated, armed like the convexity with a single row of numerous small granules on each side.

The two paratypes have the marginal serrations of the *pronotum* almost obsolete.

Holotype—a female, Glen Alpine, Cal., June, Coll. Dr. A. Fenyès, No. 1371, in the Canadian National Collection, Ottawa.

Paratypes—2 ♀'s, same labels.

***Pityophthorus elongatus* n. sp.**

A very narrow, elongate species, with the sides parallel, the apices of the *elytra* acuminate. Length 2.1 mm. Relative measurements; *pronotum*, width 3.5, length 4; *elytra*, width, 3.8, length 8.

The *Head*, ♀, has the front convex, covered by a minutely, densely punctured, minutely pubescent area, bounded behind by a semicircle and reaching to the front margin of the *epistoma*; the vertex very coarsely, closely punctured, the antennal club elongate-oval, the first two sutures straight.

The *Pronotum* has the sides straight and parallel on more than the basal half, feebly constricted and very broadly rounded in front; the marginal serrations subequal, strongly recurved; the asperities of the cephalic half coarse, in broken subconcentric rows, isolated in front, contiguous near the summit, which is prominent; the caudal half rather coarsely, not closely, punctured on the disc, less coarsely but still distinctly punctured on the sides; the median line smooth, narrower and subcarinate, towards the summit; the basal margination strongly developed, extending cephalad on the sides beyond the middle.

The *Elytra* have the sides straight and parallel far behind the middle, acuminate behind; coarsely punctate-striate, the striae feebly impressed, the sutural striae more strongly; the stria punctures coarse, deep, in fairly regular rows throughout, except between the subcarinate 9th interspace and the margin, where the punctures are irregular; the interspaces very narrow, sparsely, coarsely punctured, more closely near the scutellum; the suture wide and strongly elevated from base to apex; the pubescence minute, inconspicuous, longer on the sides and declivity; the ventral surface sparsely punctured, the punctures small on the metasternum and coarse on the abdomen; the last ventral deeply emarginate.

The *Declivity* is strongly, rather widely sulcate and retuse, the sulcus smooth and wider behind, the 3rd interspace of the convexity and the suture armed with a row of small granules accompanied as usual by stiff setae.

Holotype, ♀, Midday Valley, Merritt, B.C., 5-19-23; *Pinus contorta*; R.

Hopping: No. 1365 in the Canadian National Collection.

Paratypes—3 ♀'s, same data.

Pityophthorus gracilis n. sp.

A narrow, elongate species, allied to *bisulcatus* Eichh. and *granulatus* Sw. Length 2.2 mm. Relative measurements: pronotum, width 3.5, length 3.8; elytra, width 3.8, length 7.8.

The *Head*, ♀, has the front entirely covered with very long, curved, yellow hair, longer behind. The *Pronotum* has the sides widest behind, feebly narrowed towards the front, only very faintly constricted before the middle; the asperities of the cephalic half coarse, isolated, in fairly regular concentric rows; the disc behind sparsely, moderately punctured, much more finely on the sides. The *Elytra* have the disc regularly punctate-striate between the suture and the 9th interspace, which is feebly carinate; the stria punctures moderate, deep; the interspaces narrow, subrugulose, very sparsely, moderately punctured. The *Declivity* is sulcate-retuse and acuminate, the granules and setae on the suture and 3rd interspace on the convexity very small.

Holotype—♀, Grant Co., Ore., 6-23-14, *Pinus contorta*, W. J. Chamberlin, 1965. No. 1364 in the Canadian National Collection, Ottawa.

Paratype—♀, Or. Ex. Sta. (No. 1422).

Pityophthorus cutleri n. sp.

A moderately stout species, allied to *bisulcatus* Eichh. Length 2 mm. Relative measurements: pronotum, width 3.6, length 4; elytra, width 3.8, length 7.1. Red, elytra sulcate-retuse and acuminate.

The *Head* has the front convex, densely, minutely punctured, clothed with long yellow hairs; the antennal club elongate-oval, with the sutures similarly arcuate.

The *Pronotum* is arcuate on the sides behind, gradually narrowed in front, with the constriction very feeble, front margin rather narrowly rounded; the marginal serrations very small and recurved, the asperities of the cephalic half small, in a few, subconcentric rows; the caudal half of the disc moderately, not closely punctured (interspaces very much greater than the diameter of the punctures), punctation smaller on the sides; the smooth median line narrow, subcarinate near the summit.

The *Elytra* have the disc lightly punctured; striae very feebly impressed, except the sutural striae; stria punctures in regular rows, moderate in size; interspaces almost impunctate, with few, small, scattered punctures; the *Declivity* broadly sulcate-retuse and acuminate, the sulcus rather wide, a row of granules along the suture and 3rd interspace on the convexity, the latter subacute, without long setae; elytral pubescence almost obsolete, a few short hairs about the sides.

Holotype—♀, Midday Valley, Meritt, B. C., *Pinus ponderosa*. 6-12-23. N. Cutler. No. 1363 in the Canadian National Collection, Ottawa.

Paratypes—3 ♀'s, same data.

Pityophthorus borealis n. sp.

In the Report of the Arctic Expedition, 1913-1918, Vol. III, Coleoptera, page 9E, 1919, a series of this species was left under the name *nitidus* Sw. After a further study of this rather dilapidated material I have decided to treat

it as a distinct species. It is larger and stouter than *nitidus*, with the punctures of the pronotum coarse on the disc behind the middle and somewhat granulate, finer on the sides and hardly at all granulate; the elytra very feebly punctured, a little more strongly at the base; the stria punctures in regular rows except on the sides; interstria punctures sparse on the disc; the declivity smooth and very feebly granulate as in *nitidus*. The front of the female has the large, subcircular, densely punctate area densely clothed with rather long hair; in the female of *nitidus* this area bears rather short inconspicuous hairs which barely obscure the surface.

Holotype—♀, Coppermine River, Arctic Canada; white spruce; C. A. E.; F. Johannsen, Coll. No. 1368 in the Canadian National Collection.

Paratypes—17 specimens from same collection, more or less broken.

***Pityophthorus exilis* n. sp.**

A slender species, nearly of the size, form and sculpture of *elongatus*, from which it is separated chiefly by the different sculpture and pubescence on the front of the head in both sexes.

The female has, on the front of the head, a large, subcircular area, very densely, minutely punctate and densely clothed with rather long hairs; the male has practically the same area flat, shining, very coarsely confluent punctate, with the pubescence minute and inconspicuous, with a smooth, arcuate carina between the upper angle of the eyes with a median caudal extension.

Holotype—♀, Ochocho Nat. For., Ore., 1914, R. Hopping. No. 1362 in the Canadian National Collection.

Allotype—♀, same data.

Paratypes—1 female and 4 males, same data.

***Pityophthorus tenuis* n. sp.**

Length 2 mm. Very closely allied to *elongatus* Sw., but a little stouter, the pronotum rather finely and sparsely punctured on the disc behind, with a small lateral smooth space; the punctation on the sides behind very fine; the elytral punctation as in *elongatus* but deeper and coarser, the apex of the elytra distinctly acuminate, but less strongly than in *elongatus*. The front of the head is quite distinct, densely, minutely punctured on a slightly convex, semicircular area on the epistoma, the width of the area much greater than the length, bounded in front by a postmarginal raised line, sparsely clothed with rather long, decumbent, yellow hairs; the vertex very coarsely punctured.

Holotype—♀, Midday Valley, Merritt, B.C.; VI-8-1923; *Pinus contorta*; R. Hopping, No. 1366 in the Canadian National Collection.

Paratype—One female, dissected and mounted in balsam, same data.

***Ips chamberlini* n. sp.**

Length 4.8 mm., width 1.9 mm., dark piceous, almost black, a small slender species allied to *concinus* Mannh., and *radiatae* Hopk., with fine, erect, rather long pubescence.

The head has the characters of *concinus*, ♀, the front granulate, with a smooth median pit and a small marginal epistomal granule; the antennal club with the sutures very strongly, concentrically arcuate.

The pronotum is nearly as in *concinus*, slightly more elongate, with

the caudal half of the disc closely, finely and deeply punctate, but with the granules hardly perceptible on the disc. In *concinus* the granules on this region are the acute, elevated, caudal margins of the punctures and are subconcentrically arranged about the summit as a centre.

The elytra are nearly as in *radiatae*, the 1st striae impressed, the first two interspaces and those near the sides confusedly punctured, remaining interspaces uniseriately punctured, the striae and interstriae rows very narrowly and faintly impressed, the interstriae punctures nearly as numerous and large as those of the striae; the declivity as in *radiatae*, ♀, but less deeply excavated, the face nearly flat, the apical elevated margin very short, the sides elevated but little more strongly than the suture; with the marginal teeth as in its allies, the 1st small, acute, the 2nd larger, conical, acute, rather distinctly separated from the 1st, their bases hardly contiguous, the 3rd longest and cylindric.

Holotype—♀, "Astoria, Oregon, Jun. 3, 1916, *Pseudotsuga taxifolia*, 2002, (W. J. Chamberlin)". No. 1376 in the Canadian National Collection, Ottawa.

Paratype—1 ♀, same data; in the collection of Prof. W. J. Chamberlin, to whose kindness I am indebted for this and many other interesting species.

*This species may be distinguished from its allies by the following characters:

- B The caudal half of the disc of the pronotum finely, densely punctured.
- C The caudal half of the disc of the pronotum distinctly granulate; the interstriae punctures of the elytra smaller than those of the striae; declivity deeply excavated, its sides much more strongly elevated than the suture *concinus* Mnanh.
- CC The caudal half of the pronotum hardly perceptibly granulate on the disc; the punctures of the elytral striae and interspaces nearly equal in size, the declivity nearly flat, its sides elevated but little more strongly than the suture. *chamberlini* n. sp.
- BB The caudal half of the disc of the pronotum rather coarsely punctured, not granulate, the surface between the punctures smooth and shining; the elytra rather coarsely punctured, the interstriae punctures as large as those of the striae. *radiatae* Hopk.

Ips ponderosae n. sp.

Length, 6.5 mm. to 7 mm., reddish brown to black, with the general characters of *Ips calligraphus* Germ., to which it is closely allied. It differs chiefly in the strongly punctured caudal half of the pronotum, with the punctures coarse deep and close on the disc, the sides with the surface roughened, punctures smaller, but still rather coarse; and by the coarse granules on the third elytral interspace at the top of the declivity.

Holotype—♀, *Pinus ponderosa*, Coconino National Forest, Ariz., vi-1915, (Ralph Hopping). No. 1377, in the Canadian National Collection.

Allotype—♀, same data.

Paratype—2 ♂'s, 1 ♀, same data; 1 ♀, Montana.

*—See Canadian Bark Beetles, Part II, p. 107.

A PRELIMINARY REVISION OF THE CAMPOPLEGINAE IN THE CANADIAN NATIONAL COLLECTION, OTTAWA.*

BY HENRY L. VIERECK,

Ottawa, Ont.

(Continued from page 181)

KEY TO THE SPECIES OF SAGARITIS HOLMGREN.

1. Recurrent vein received in or beyond middle of areolet 2.
 Recurrent vein received before middle of areolet 19.
2. Hind coxae pale at least beneath 12.
 Hind coxae black 3.
3. Fore coxae not black 4.
 Fore coxae black 10.
4. Femora not swollen 8.
 Femora swollen 5.
5. Second tergite without a reddish apical band *lipopus* n. sp.
 Second tergite with a reddish apical band 6.
6. Third and following tergites partly reddish *lipomerus* n. sp.
 Third and following tergites black 7.
7. Hind tibiae with a whitish annulus *bigelovi* n. sp.
 Hind tibiae without a whitish annulus *cingulatus* n. sp.
8. Abdomen partly pale reddish 9.
 Abdomen entirely dark *medius* n. sp.
9. Hind tibiae without a whitish annulus, at most with a yellowish stripe
 ♂ *lipomerus* Vier.
 Hind tibiae with a whitish annulus *rufosignatus* n. sp.
10. Abdomen above more or less reddish 11.
 Abdomen above entirely black *unicolor* n. sp.
11. Abdomen beyond the second tergite almost entirely reddish *diversus* n. sp.
 Abdomen beyond the second tergite mostly black *intermedius* n. sp.
12. Areolet sessile 13.
 Arolet petiolate 14.
13. Abdomen mostly reddish *compactus* Prov.
 Abdomen entirely black *atypicus* n. sp.
14. Abdomen partly reddish 15.
 Abdomen not partly reddish, virtually all black; ovipositor exerted over one-third the length of the abdomen; hind tibiae whitish at base *taeniatus* Vier.
15. Apex of post petiole yellowish or reddish 16.
 Apex of post petiole black *conjunctus* Cress.
16. Hind tibiae without a whitish or yellowish annulus or stripe *dowensi* n. sp.
 Hind tibiae with a whitish or yellowish annulus or stripe 17.
17. Hind tibiae with a whitish annulus 18.
 Hind tibiae with a yellowish annulus *xanthotaeniatus* n. sp.
18. Greatest width of lateral ocelli distinctly shorter than the ocellocular line
 *latus* n. sp.
 Greatest width of lateral ocelli as long as or longer than the ocellocular line *apicalis* n. sp.
19. Greatest diameter of lateral ocelli as long as or longer than the ocellocular

- line 20.
 Greatest diameter of lateral ocelli shorter than ocellocular line 60.
 20. Hind coxae reddish or brownish at least in part 21.
 Hind coxae black above and below 28.
 21. Hind coxae reddish throughout 22.
 Hind coxae reddish or brownish in part 23.
 22. Fourth tergite in ♂ black at base 27.
 Fourth tergite in ♂ wholly red 26.
 23. Areola longer than wide *conjunctiformis* Vier.
 Areola not longer than wide 24.
 24. Scape stramineous *hexagonalis* n. sp.
 Scape black 25.
 25. Abdomen not almost entirely black above *atkinsoni* n. sp.
 Abdomen almost entirely black above *patsuiketorum* Vier.
 26. Areolet incomplete *incompletus* n. sp.
 Areolet complete *nephelodis* Ashm.
 27. Hind tibiae not partly whitish *nigrisignatus* n. sp.
 Hind tibiae partly whitish *beaulieui* n. sp.
 28. Hind tibiae with a whitish annulus 43.
 Hind tibiae without a whitish annulus, at most a yellowish stripe 29.
 29. First and following tergites not pale at apex *melanosomus* n. sp.
 First and following tergites mostly pale at apex 30.
 30. Fore and mid-coxae blackish 31.
 Fore and mid-coxae pale 34.
 31. Hind legs entirely black *gorhami* n. sp.
 Hind femora black only at base 32.
 32. Sides of the tergites 4, 5 and 6, mostly blackish *nigricoxus* n. sp.
 Sides of the tergites 4, 5 and 6, mostly reddish 33.
 33. Scape reddish *rufiscapus* n. sp.
 Scape blackish *californicus* Holmg. race
 34. Third tergite mostly reddish *signatus* n. sp.
 Third tergite mostly black 35.
 35. Hind femora reddish at base 36.
 Hind femora blackish or black at base 38.
 36. Area dentiparia finely sculptured 41.
 Area dentiparia coarsely sculptured 37.
 37. Third and fourth tergites blackish throughout *hoppingi* n. sp.
 Third and fourth tergites with an apical reddish margin *trackas* n. sp.
 38. Hind femora with a black stripe *strigosus* n. sp.
 Hind femora without a black stripe 39.
 39. Areola dullish, shagreened or rugulose 40.
 Areola polished *evansi* n. sp.
 40. Hind tibiae without a yellowish stripe *englishi* n. sp.
 Hind tibiae with a yellowish stripe *trochanteralis* n. sp.
 41. Areola truncate at base, nearly equilateral 42.
 Areola nearly pointed or acute angled at base; abdomen black excepting apical
 margins of segments beyond petiole with exception of apical segment

- which are reddish, sides of the segments beyond second largely reddish
 *perdistinctus* Vier.
42. Nervellus not angulated *twinni* n. sp.
 Nervellus angulated *nocturnus* Vier.
43. Fore and mid coxae mostly black 44
 Fore and mid coxae mostly pale, stramineous or reddish stramineous
 *aprilis* Vier.
44. Areola incomplete, nearly as in *australis* 45.
 Areola complete 46.
45. Hind tibiae with a reddish and blackish stripe *linearis* n. sp.
 Hind tibiae with a yellowish almost whitish stripe *septentrionalis* n. sp.
46. Abdomen above not entirely black 47.
 Abdomen above entirely black 49.
47. Second and following tergites partly reddish *kingi* n. sp.
 Second and following tergites black 48.
48. Hind femora black at base *tibialis* n. sp.
 Hind femora reddish at base *chrystali* n. sp.
49. Hind femora mostly black *melanomerus* n. sp.
 Hind femora mostly reddish *websteri* Vier.
50. Fourth and following tergites reddish *apicata* n. sp.
 Fourth and following tergites partly black 51.
51. Fourth tergite not reddish to base *interruptus* n. sp.
 Fourth tergite reddish to base *imperfectus* n. sp.
52. Hind femora without a black stripe 55.
 Hind femora with a black stripe 53.
53. Abdomen above not banded *aequalis* n. sp.
 Abdomen banded 54.
54. Bands of abdomen conspicuous *conspicuosus* n. sp.
 Band inconspicuous *inconspicuosus* n. sp.
55. Mid proximal trochanters blackish 59.
 Mid proximal trochanter yellowish 56.
56. Sides of the third, fourth and fifth tergites virtually entirely black
 *citrinus* n. sp.
 Sides of the third, fourth and fifth tergites largely reddish 57.
57. Hind femora black at base *julius* n. sp.
 Hind femora not black at base 58.
58. Third and fourth tergites mostly black *aprilis* Vier.
 Third and fourth tergites virtually entirely reddish *maius* n. sp.
59. Third fourth and fifth tergites largely reddish on the sides *teulonensis* n. sp.
 Third, fourth and fifth tergites hardly reddish on the sides or entirely black
 *laevis* n. sp.
60. Abdomen partly rufous or yellowish above 63.
 Abdomen black throughout above 61.
61. Areola not longer than wide 62.
 Areola longer than wide *striatipes* Ashm.
62. Fore and mid coxae black *aequalis* Vier.
 Fore and mid coxae pale *melanocerus* n. sp.

63. Hind coxae reddish 64.
Hind coxae black 71.
64. Second, third and fourth abdominal segments mostly bright reddish 65.
Second, third and fourth abdominal segments blackish red *occidentalis* Ashm.
65. Fourth tergite not entirely reddish 68.
Fourth tergite entirely rufous 66.
66. Scape piceous, areolet large, trapezoidal 67.
Scape stramineous *stramineiscapus* n. sp.
67. Proximal trochanter mostly blackish *oxylyus* Cress.
Hind proximal trochanter reddish, almost concolorous with hind coxae....
..... *lawrencei* Vier.
68. Fourth tergite reddish, blackish at base 69.
Fourth tergite reddish, blackish at apex *ruficoxalis* Vier.
69. Scape in ♂ black *nigriscapous* n. sp.
Scape in ♂ at least partly pale 70
70. Areola nearly pointed at base *garretti* n. sp.
Areola nearly equilateral *basalis* n. sp.
71. Abdominal segments without an apical yellowish band 73.
All abdominal segments with an apical yellowish band 72.
72. Fore and mid-coxae black *taylori* n. sp.
Fore and mid-coxae pale *flavicineta* Ashm.
73. Spiracles of first segment nearer to each other than to apex 74.
Spiracles of first segment as near or nearer to the apex than to each other
..... *yakutatensis* Ashm.
74. Fifth segment mostly blackish laterally; propodeum coarsely sculptured 76.
Fifth segment mostly reddish laterally; propodeum finely sculptured 75.
75. Mid-coxae black above *prodeniae* Vier.
Mid-coxae pale above *modestus* n. sp.
76. Fore and mid proximal trochanters yellowish *ruficrus* n. sp.
Fore and mid proximal trochanters black *consimilis* Ashm.

KEY TO THE SUBGENERA OF CAMPOPLEX GRAVENHORST.

1. Areolet present 5.
Arolet wanting 2.
2. Nervellus neither angulate nor broken 3.
Nervellus angulate below the middle; ovipositor, distinctly exerted, spiracles
of first tergite distinctly nearer to each other than to apex; head not cubical
..... *Campoplex*
3. Head rather cubical, occipital carina almost on a level with lower edge of
hind ocelli; lower angle of marginal cell almost a right angle, nervellus verti-
cal; ovipositor prominently exerted, thorax elongate; postpetiole distinctly
shorter than the petiole, the latter without a fossa on each side
..... *Nemeritis* (*Phaedroctonus*).
Head not at all cubical, occipital carina at least as far below the level of lower
edge of hind ocelli as hind ocelli are from each other; lower angle of
marginal cell not almost a right angle 4.
4. Costulae incomplete or wanting; nervellus vertical, claws pectinate *Diocles*
Costulae complete; head receding obliquely from the hind ocelli; not lenticular;

- petiole with a fossa on each side near the postpetiole, ovipositor hardly longer than the apical truncature of the abdomen *Zachresta*.
5. Petiole with a well defined fossa 11.
 Petiole with at most an indistinct fossa (cf. *Diadegma*) usually without a fossa, or with a punctiform impression near post-petiole 6.
6. Second abscissa of discoidal vein as long as or longer than the third 7.
 Second abscissa of discoidal vein distinctly shorter than the third, costulae wanting, incomplete or poorly developed; abdomen truncate at apex in female *Holocremnus* Foer.
7. Costulae distinct and complete 8.
 Costulae indistinct or incomplete 9.
8. Recurrent vein received before middle of areolet; spiracles of first tergite distinctly nearer to each other than to the apex *Callidora* Foer.
 Recurrent vein received by areolet in or beyond middle; spiracles of first tergite apparently as near or nearer to apex than to each other; areas spiraculifera and dentiparia separated by a carina *Ischnoscopus* Foer.
9. Ocelloccipital line apparently one and one-half times as great as postocellar line; ovipositor hidden or at least not much longer than apical truncature of abdomen in species with abdomen truncate *Hyposoter* Foer.
 Ocelloccipital line hardly greater than the postocellar line; hind claws distinctly pectinate 10.
10. Lower angle of radial cell almost a right angle; abdomen in female truncate at apex, ovipositor not prominently exerted; hind claws not distinctly pectinate; areas spiraculifera and dentiparia not separated from each other by a carina *Hypotherentes* Foer.
 Lower angle of radial cell not almost a right angle; abdomen truncate at apex, ovipositor not prominent *Amelotonus* Foer.
11. Second abscissa of discoidal vein as long as or longer than the third; costulae indistinct at least in part and complete, recurrent vein received by the areolet in or beyond the middle 13.
 Second abscissa of discoidal vein distinctly shorter than the third; costulae wanting, incomplete or poorly developed, abdomen with conical apex. 12.
12. Ovipositor prominently exerted *Angitia* Foer.
 Ovipositor not prominently exerted *Diadegma* Foer.
13. Spiracles of first tergite prominent, or at least distinctly nearer to each other than to apex, or apparently as near to each other as to the apex, ovipositor prominent, distinctly longer than the apical truncature of the abdomen; lower angle of radial cell very obtuse not at all approaching a right angle, hind claws not or only indistinctly pectinate *Ecphora* Foer.
 Spiracles of first tergite apparently as near or nearer to the apex than to each other, ovipositor prominently exerted; hind claws distinctly pectinate, lower angle of radial cell very obtuse; propodeum channelled
 *Eulimneria* Schm.

KEY TO THE SPECIES OF ECPHORA FOER.

1. Fore and mid-tarsi mostly pale 2.
 Tarsi fuscous or blackish *alternatus* n. sp.
2. Second and third tergites partly reddish (*Angitia*) *oedemisiformis* Viereck.

All tergites black throughout *canadensis* n. sp.

KEY TO THE SPECIES OF HOLOCREMNUS FOERSTER.

1. Hind coxae not black 2.
Hind coxae black 3.
2. Hind coxae reddish and black, clypeus yellow *flavicypeus* Vier.
Hind coxae reddish, sides of second tergite usually blackish, clypeus black
..... *lophyri* Riley
3. Second tergite reddish throughout, clypeus black, second tergite entirely
reddish *virginiensis* Vier.
Basal third or half or more of second segment black 4.
4. Apical half of second tergite reddish *peraffinis* Ashm.
Apex of second tergite reddish or yellowish 5.
5. Apex of second tergite yellowish *grahami* n. sp.
Apex of second tergite reddish 6.
6. Apex of third as well as the remainder of the third tergite reddish
..... *alaskensis* Ashm.
Apex of third tergite with a reddish band *metacommet* Vier.

KEY TO THE SPECIES OF HYPOSOTER FOERSTER.

1. Thorax reddish like the abdomen, head only partly black 2.
Thorax and head black 3.
2. Areola and petiolarea not confluent *rubiginosus* Cush.
Areola and petiolarea confluent *erythrinus* n. sp.
3. Hind coxae black 4.
Hind coxae more or less reddish 12.
4. Hind tibiae with a whitish annulus or stripe 17.
Hind tibiae without a whitish annulus or stripe 5.
5. Abdomen not entirely black above 6.
Abdomen black above 9.
6. Sides of the tergites mostly reddish 7.
Sides of the tergites mostly black *fuscitarsatus* n. sp.
7. Areolet sessile *basilaris* Prov.
Arolet petiolate 8.
8. Abdomen with the sides and venter reddish-yellow, first segment, basal two-
thirds and a narrow apical band of second black; hind tibiae blackish at
base and apex with the middle paler *interjectus* Gahan
Abdomen reddish excepting the narrow portion of the petiole which is black,
hind tibiae stramineous with a subbasal fuscous band *parorgyiae* Vier.
9. Scape stramineous beneath *vancoverensis* n. sp.
Scape black beneath 10.
10. Eyes distinctly converging below *convergens* n. sp.
Eyes hardly or not converging below 11.
11. Areola acutely angulated at base *acutus* n. sp.
Areola truncate at base *truncatus* n. sp.
12. Clypeus black 14.
Clypeus mostly or partly yellowish 13.
13. Lateral ocelli nearer the eye than to the anterior ocellus *diversicolor* Vier.
Lateral ocelli nearer the anterior ocellus than to the eye *plesius* n. sp.

14. Abdomen at least partly reddish above 15.
Abdomen black above 16.
15. Eyes not converging Cymodusa-like *stenus* n. sp.
Eyes converging Cymodusa-like; hind coxae only black; tergites with apex of third, most of fourth and all of rest reddish *confluens* Vier.
16. Ovipositor not prominent; basalarea quadrangular *oedemasiae* Ashm.
Ovipositor prominent *comptoniellae* n. sp.
17. Petiole without a fossa 18.
Petiole with a fossa on each side 19.
18. Abdomen black above *parallelus* n. sp.
Abdomen partly reddish above *occidentali* n. sp.
19. Abdomen above almost entirely black 20.
Abdomen above not almost entirely black *petiolatus* n. sp.
20. Lateral ocelli obviously shorter than the ocellocular line *curtus* n. sp.
Lateral ocelli apparently as long or longer than the ocellocular line 21.
21. Areolet sessile or nearly so *paenesessilis* n. sp.
Arolet petiolate 22.
22. Head not receding directly back of the eyes *laticeps* n. sp.
Head receding directly back of the eyes 23.
23. Larger pale mark of hind tibiae whitish *pygmaeus* n. sp.
Larger pale mark of hind tibiae yellowish 24.
24. Areolet minute *minutus* n. sp.
Arolet large 25.
25. Basal area nearly crowded out, mostly represented by a carina
..... *obliteratella* n. sp.
Basal area triangular *triangularis* n. sp.

KEY TO THE SPECIES OF HYPOTHEREUTES FOERSTER.

1. Nervellus angulate 3.
Nervellus not angulate 4.
2. Basal area triangular or trapezoidal, areola not parallel sided; abdomen without a median longitudinal black band 4.
Basal area almost entirely replaced by a median longitudinal carina, areola parallel sided; abdomen with a median longitudinal black stripe
..... *nigrolineatus* Vier.
3. Hind coxae reddish *elyi* Vier.
Hind coxae black *impetitus* n. sp.
4. Basal area triangular 6.
Basal area trapezoidal; hind coxae reddish 5.
5. Hind tibiae partly white *vernalis* Vier.
Hind tibiae not partly white *clarus* n. sp.
6. Hind coxae black *exiguae* Vier.
Hind coxae reddish 7.
7. Hind tibiae mostly yellowish *acceptus* n. sp.
Hind tibiae black and white *concisus* n. sp.

(To Be Continued)

A NEW NOCTUID FROM BRITISH COLUMBIA. (LEPID.)

BY E. H. BLACKMORE,

Victoria, B. C.

PHALAENINAE.

Lampra pulchrata nov. sp.

Palpi, second joint heavily scaled with an admixture of red, yellow and black scales exteriorly, third joint small, porrect, with black, red and white scales, black predominating. Head and front rough-scaled, greyish. Thorax dove-grey, patagia and collar tipped with reddish-brown, abdomen darker grey with long loose hairs on each segment; anal tuft and underside of abdomen reddish purple. Primaries greenish grey with a broad median reddish purple band. The ground color is irrorated with reddish purple scales, a small basal purplish patch reaches from costa to median vein. Basal half-line pale grey; t.a. line geminate, purplish, filled with pale grey, outwardly oblique, sinuate. Orbicular round, reniform oval, both filled with golden yellow and partially outlined with dark brown scales; claviform distinct, filled with golden yellow and outlined with dark brown. T.p. line geminate, inner and outer lines purplish, indistinct, pale grey filled, commencing with white spot on costa, then broadly rounded opposite cell, thence gently incurved to inner margin; s.t. line pale, inwardly oblique from costa, then irregularly sinuous to inner margin, this line is preceded by a heavy purple shade which fades out to the ground color anteriorly. Terminal area pale grey, with intervenular dashes of dull yellow scales. Fringes concolorous with ground color. Secondaries deep smoky with a slight purplish reflection, slightly paler basally; fringes white mixed with a few light purple scales, the latter being more noticeable at apical angle, where they predominate. Beneath, primaries pale reddish purple, paler on outer margin, fuscous centrally; t.p. line indicated on costa by two dark dots; secondaries pale reddish purple with dusky curved median line. Expanse ♂ 32 m.m.; ♀ 35-36 m.m.

Described from 7 specimens, 3 ♂♂, 4 ♀♀ all taken by Mr. G. O. Day, Quamichan Lake, V. I.

Holotype—♂ Maple Bay, near Duncan, B. C., August 16th, 1920, in the Canadian National Collection, Ottawa.

Allotype—♀ Maple Bay, B. C., August 10th, 1920, in collection of author.

Paratypes: 1 ♂ Quamichan Lake, near Duncan, B. C., July 22nd, 1918, (Bred) in coll. Day; 1 ♂ Maple Bay, near Duncan, B. C., August 21st, 1920, in coll. Dr. W. Barnes; 1 ♀ Maple Bay, August 19th, 1920, in coll. of author, and 2 ♀♀ Maple Bay, August 24th, 1919, and August 10th, 1920, in coll. Day.

The larva, from which the Quamichan Lake specimen was bred, was found by Mr. Day, crawling up a fence post on May 20th, 1918, evidently looking for a place to pupate. The larva was blackish brown in color, with darker oblique markings on the last 4 or 5 segments. It was supplied by Mr. Day with a piece of rotten wood, into which it immediately disappeared, the perfect insect emerging on July 22nd. As the larva probably went into pupation within a day or so of its disappearance, the approximate duration of the pupal stage would be about sixty days. This species is one of the most striking in appearance of the whole genus and is apparently most closely allied to *variata* Grt.

NEW COLEOPTERA FROM WESTERN CANADA.*

BY RALPH HOPPING,

Vernon, B. C.

CARABIDAE

Zacotus subopacus n. sp.

Length 15 mm. Entirely black, opaque with a faint purple lustre.

Head with disc of front depressed and only faintly, transversely rugose, caudal margin more strongly rugose with a large median pit. Antennae with four basal segments glabrous, distal segments 5 to 11 pubescent. Prothorax longer than wide, evenly rounded, strongly convex and constricted caudad, with disc of pronotum acuminate and sulcate on the median line.

Elytra sparsely aciculate; striae widely separated, shallow, with small punctures widely placed; apices evenly rounded to the suture.

Ventral surface of the abdomen strongly aciculate. Front tibiae with terminal and median spurs long and stout, strongly emarginate between, the emargination with fringe of stout, golden hairs.

Holotype—♀, Princeton, B. C., 24-v-1924, K. F. Auden. No. 1380 in the Canadian National Collection, Ottawa.

Paratypes—2 ♀'s, one bearing the same label as the *Holotype* and the other "Midday Val., Merritt, B. C., 23-vii-1924, K. F. Auden."

Three other dilapidated specimens have been examined in the Canadian National Collection, two from Kaslo, B. C., collected in 1903, and one at Princeton in 1924. One of the Kaslo specimens is a male, having the first three tarsal segments densely pilose beneath.

The only other species known, *Z. matthewsi* Lec., was described in 1869. It differs from *Z. subopacus* in the bright metallic color, strongly rugose front of the head, and transversely rugulose pronotum, more definite elytral striae and larger size. Three specimens of *Z. matthewsi* before me are 16½ to 17 mm. in length, all females. *Z. subopacus* is 13 to 15 mm., and of somewhat narrower form.

Zacotus matthewsi is probably confined to the Coast Region while *Z. subopacus* has been found thus far only in the southern interior of British Columbia.

MELYRIDAE

Microlipus falli n. sp.

Length 3 to 4 mm. Entirely black with legs sometimes slightly pale; females not apterous; elytra of males not appendiculate.

The head has the front shining, sparsely minutely punctured, irregularly depressed and vestiture sparse; front exceedingly short; antennae of male with segments 5 to 10 strongly pectinate, serrate in the female; head across the eyes as wide as pronotum.

Pronotum shining, shorter than wide, sparsely, minutely punctured; vestiture very sparse; basal margin flexed upward.

Elytra finely subrugulose, slightly wider apically in both sexes; apex of male acutely angulate at suture, that of the female separately rounded; apices of male not appendiculate; vestiture short and inconspicuous.

*—Contribution from the Division of Forest Insects, Entomological Branch, Department of Ottawa, Ont.

Described from a series of 9 ♂'s and 7 ♀'s which emerged from caged yellow pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga taxifolia*) in the Midday Valley, near Merritt, British Columbia, June 8 to 21, 1922. Collected by Mr. N. Cutler and the author.

Holotype—♂, *Pinus ponderosa*, N. Cutler, 17051, Lot 552, vi-9-1922, Midday Valley, Merritt, B. C., No. 1381 in the Canadian National Collection, Ottawa.

Allotype—♀, *Pinus ponderosa*, N. Cutler, 17051, Lot 558, vi-15-1922, Midday Valley, Merritt, B. C.

Paratypes—4 ♂'s and 4 ♀'s 6 from *Pinus ponderosa* and two from *Pseudotsuga taxifolia*, all from Midday Valley, Merritt, B. C.

This species is about the size of Fall's *Microlipus franciscanus* and should be placed in the table¹ after *M. prolixicornis* Fall on account of the strong pectinate antennae of the male. It is easily separated from *M. prolixicornis* by the black color and by the pronotum being shorter than the width.

PEDILIDAE

***Stereopalpus columbianus* n. sp.**

Length (♂) $6\frac{1}{2}$ mm., (♀) 7 mm. Entirely black throughout with elytra densely black and shining.

Head as wide as pronotum at widest part, with front densely rugose, punctate, and apex with rather long vestiture; width between the eyes approximately $1\frac{1}{2}$ times greater than diameter of the eye.

Pronotum wider at apical than basal half, rugosely punctate, but not densely, and with a faint median sulcus or line.

Elytra densely black and rather strongly shining, with polished appearance; vestiture light grey, short and decumbent, not conspicuous; punctation moderately sparse; apices narrowly rounded.

Vestiture of body beneath moderately sparse, pale yellow.

The only difference in the sexes seems to be in the last visible ventral segment, which in the male is emarginate.

Described from two males and three females from the dry southern interior of British Columbia.

Holotype—♂, Vernon, B. C., vii-26-1920, Ralph Hopping, No. 1382 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—1 ♂ and 2 ♀s, the one ♂ with the same label as the types and the two females bearing, "Hedley, B. C. vii-7-1922, Ralph Hopping."

This species is slightly shorter in proportion than *S. vestitus* Say, but of the same type of prothorax. The vestiture is not at all evident except under a glass.

Stereopalpus mellyi Laf. is in my opinion a synonym of *S. vestitus* Say, the latter having precedence by 25 years. Characters given to separate the species are often combined on the same specimen. The color of the elytra is variable, the median pronotal sulcus may or may not be present, depending upon the sex or individual, and the legs vary from yellow to black.

1.—Trans. Am. Ent. Soc. Vol. 43, p. 74.

CERAMBYCIDAE

***Saperda bipunctata* n. sp.**

Length (♂) 13 mm., (♀) 14 mm. The color of this species is visibly determined by the dense vestiture, which is bluish white beneath and light brown above, with two bluish white vittae joined on the head and extending to the apices of the elytra, forming a wide brown median band and two slightly narrower lateral bands.

The front of the head has the same vestiture as the ventral part of the body, sulcate, with a fine, black line, visibly, finely, sparsely punctured and flattened between the antennae.

The antennae are unicolorous grey, the length often varying in the same sex.

The pronotum is brown with two white bands.

The bluish white elytral vittae are more or less sinuate, narrowing on the inside margin midway between the base and apex and are parallel, not touching the suture apically. On the basal sixth of each vitta is a brown spot.

The legs are slightly greyer than the ventral surface and the processes on the claws are moderately long, longer on the middle than on the anterior pair.

Holotype—♂, Aweme, Manitoba, July 24, 1924, R. M. White, No. 1383 in the Canadian National Collection, Ottawa.

Allotype—♀, Douglas Lake, Manitoba, July 30, 1924, R. M. White.

Paratypes—Eleven specimens from Darlingford, Aweme, Grand Marais and Onah, all in Manitoba, collected by R. M. White, Norman Criddle and J. B. Wallis.

This species is nearest to *Saperda candida* Fab. but differs in its more robust form, the parallel and sinuate vittae, the two brown spots in the vittae and the absence of a basal widening of these bands, also the bluish cast to the white vestiture and the bands not touching the elytral suture at the apices, but on the contrary being rather widely separated. The earliest record we have of the capture of this species is in July, 1902, by Mr. Norman Criddle. In Blatchley's "Coleoptera of Indiana" the figure No. 470 on p. 1087, as *Saperda candida*, is evidently *S. bipunctata*, but in the 30 specimens before me I have never seen two spots in each band, which variation, however, may well occur. In some specimens the band is broken and occasionally the brown spot breaks through the lateral margin.

It is commonly found breeding in *Amelanchier* and sometimes in *Crataegus*.

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